

REMARKS

Claim 10 is independent and stands rejected under 35 U.S.C. § 102 as being anticipated by Kolodzey et al. '538 ("Kolodzey"). This rejection is respectfully traversed for the following reasons.

The Examiner relies on element 28,32 of Kolodzey as the claimed gate electrode, and relies on the material for the electrode *itself* as the claimed adhesion enhancing element (i.e., Al or Cu). However, Al or Cu is merely a conventional electrode material. In order to clarify this distinction, claim 10 recites in pertinent part, "forming a gate electrode containing an adhesion enhancing element *and* an element other than the adhesion enhancing element ..." (emphasis added). In contrast, the alleged gate electrode 28,32 of Kolodzey is formed of a single conventional gate electrode material and does not include an additional adhesion enhancing element. Indeed, Kolodzey is completely silent as to forming a gate electrode made of plural materials; i.e., conventional electrode material combined with an adhesion enhancing element, for example.

In this regard, only Applicants have recognized the problems associated with the conventional single electrode material and conceived of a means by which to obviate such problems. For example, a thermal oxide film (Al_2O_3 , for instance) has a rough surface if formed to be thin. Accordingly, Applicants have discovered that if a gate electrode made of a conventional material such as Pt, Au or Pd is formed on the thermal oxide film, the gate electrode delaminates from the thermal oxide film (*see, e.g.*, Table 1 of Applicants' specification). One object of the present invention is to provide the capability to prevent such delamination of the gate electrode by including in the gate electrode an adhesion enhancing element *in addition* to the conventional electrode material. On the other hand, Kolodzey does

not recognize the problem of gate electrode delamination, and does not give any consideration to the adhesion between the oxide film and the gate electrode; so as to be completely unrelated to, and non-suggestive of, the present invention.

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed, either expressly or inherently (noting that "inherency may not be established by probabilities or possibilities", *Scaltech Inc. v. Retec/Tetra*, 178 F.3d 1378 (Fed. Cir. 1999)), in a single prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986), based on the forgoing, it is submitted that Kolodzey does not anticipate claim 10, nor any claim dependent thereon. The Examiner is directed to MPEP § 2143.03 under the section entitled "All Claim Limitations Must Be Taught or Suggested", which sets forth the applicable standard for establishing obviousness under § 103:

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (citing *In re Royka*, 180 USPQ 580 (CCPA 1974)).

In the instant case, the pending rejection does not "establish *prima facie* obviousness of [the] claimed invention" as recited in claim 12 because Kolodzey fails the "all the claim limitations" standard required under § 103 for at least the aforementioned reasons discussed above regarding the deficiencies of Kolodzey in relation to claim 10.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 10 is patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable.

In addition, it is respectfully submitted that the dependent claims are patentable based on their own merits by adding novel and non-obvious features to the combination.

For example, with regard to claim 12, though the Examiner admits that Kolodzey does not disclose “the thickness not less than 0.5 nm and not more than 3nm,” the Examiner effectively alleges that said feature would have been an obvious design expedient based on routine experimentation. However, it is respectfully submitted that the Examiner’s reliance on routine experimentation to allege obviousness of the claimed feature is in legal error. The “routine experimentation” basis for an obviousness rejection can only be relied upon by the Examiner if the *prior art* first recognizes the modified parameter as a result-effective variable. In the instant case, only Applicants have recognized and considered the importance of the claimed parameter (e.g., thickness) as a result-effective variable, so that the Examiner can not rely on the obviousness-theory of “routine experimentation” as a basis for asserting obviousness thereof.

The Examiner is directed to MPEP § 2144.05(II)(B) under the heading "Only Result-Effective Variables Can Be Optimized", which sets forth the applicable standard for determining result-effective variables:

A particular parameter must first *be recognized* as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. (citing *In re Antonie*, 195 USPQ 6 (CCPA 1977)).

In the instant case, the cited prior art appears to be completely silent regarding thickness as used in the particular combinational structure recited in claim 12, as achieving a recognized result (indeed, the Examiner does not reference any portion of the cited prior art for this purpose); so that there is no basis for alleging obviousness thereof based on routine experimentation.

Accordingly, it is respectfully submitted that the claimed feature would not have been obvious in view of routine experimentation because the cited prior art does not appear to recognize the

claimed parameter, *in the particular combinational structure set forth in the claim 12*, as achieving a recognized result. Even to just attempt such a rejection (which would be rebuttable), the Examiner would have to show that Kolodzey discloses that thickness of the relevant layer defines certain characteristics; as a hypothetical example, increasing thickness lowers resistance, etc.; so that modifying the thickness to get a desired resistance may allegedly have been obvious. Here, the Examiner does not evidence any portion of Kolodzey for this purpose so that the Examiner's allegation of obviousness is completely unsupported in fact and in law.

As claim 10 is believed allowable for the aforementioned reasons, it is respectfully requested that claims 13-14 be rejoined as being dependent on an allowable claim.

Based on the foregoing, it is respectfully submitted that the present application is patentable over the cited prior art. Accordingly, it is respectfully requested that the rejections under 35 U.S.C. § 102/103 be withdrawn.

CONCLUSION

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

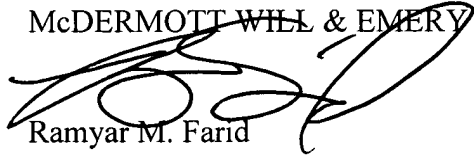
To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

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including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

A handwritten signature in black ink, appearing to read 'R. Farid', is written over the firm name.

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